

FINAL AGENDA

Joint Committee Workshop on In-state and Interstate Transmission and Potential In-state Corridors

MONDAY, MAY 14, 2007

9:30 a.m.

Hearing Room A

- I. Opening Remarks (Commissioners)
- II. Staff presentation on the Forms & Instructions data responses from transmission-owning load-serving entities regarding specific transmission projects. (Mark Hesters)
- III. Stakeholder presentation on the Lake Elsinore Advanced Pumped Storage Project (The Nevada Hydro Company representative)
- IV. Transmission-owning load-serving entities panel discussion (IOUs and Munis)
 - a. What projects do you believe should be included in the 2007 Strategic Plan, and why?
 - b. What longer-term projects are critical but do not meet the time horizon for inclusion in the 2007 Strategic Plan?
- V. Discussion/overview of potential in-state Senate Bill 1059 corridor needs (Jim Bartridge)
- VI. Transmission corridor panel discussion (IOUs and Munis)
 - a. What critical corridors on non-federal lands do you believe should be included in the 2007 Strategic Plan, and why?

--- LUNCH BREAK ---

- VII. Overview of Interstate Transmission Barriers, Trends, and Issues (Jim Sims, President, Policy Communications)
- VIII. Current Status of Cost Allocation Research for Large Multi-participant Projects (Joe Eto, CERTS/LBNL)
- IX. Discussion of interstate transmission projects and status/issues associated with them
 - a. Frontier Line Project (Steve Ellenbecker, advisor to Wyoming Governor Freudenthal)
 - b. Transwest Express Project (Bob Smith, APS)
 - c. Northern Lights Project (Bill Hosie, TransCanada Northern Lights)
 - d. Canada-Northwest-California Transmission Options (Steve Metague, PG&E Project Manager for PNW/Canada to Northern California Transmission)
- X. Panel discussion of barriers, trends and issues associated with regional transmission expansions projects identified in item IX.
 - a. What contributions can these projects make to meeting state policy objectives such as renewable resource goals and greenhouse gas legislative standards?
 - b. How do recent federal and WECC trends and policies help or hinder the achievement of state policy objectives?

Panelists: Steve Ellenbecker, Bob Smith, Bill Hosie, Steve Metague, Michael Brairton (DOE), IOU representatives, CAISO representative, LADWP representative, TANC representative, CPUC representative.

- XI. Public Comments
- XII. Closing Remarks

See Agenda Attachment entitled “In-state and Interstate Transmission Projects and Corridors for Consideration in the *2007 Strategic Transmission Investment Plan*” for more information on the agenda topics.

AGENDA ATTACHMENT: IN-STATE AND INTERSTATE TRANSMISSION PROJECTS AND CORRIDORS FOR CONSIDERATION IN THE *2007 STRATEGIC TRANSMISSION INVESTMENT PLAN*

The California Energy Commission (Energy Commission) is required by Public Resources Code (PRC) section 25324 to adopt a *Strategic Transmission Investment Plan* (*Strategic Plan*) every two years. PRC section 25324 states:

The strategic plan shall identify and recommend actions required to implement investments needed to ensure reliability, relieve congestion, and meet future load growth in load and generation, including, but not limited to, renewable resources, energy efficiency, and other demand reduction measures.

In 2005, the Energy Commission's *Strategic Plan* identified the need for several specific transmission projects that could increase the physical capacity of the California electric transmission system and the need for specific actions to improve both the regulatory and permitting environments. In 2005, the Energy Commission limited its recommendations for specific transmission projects to those projects that were identified as needed by 2010, within five years of the adoption of the *Strategic Plan*.

In 2006, transmission owners and the California Independent System Operator (California ISO) expanded their planning horizon from five years to ten years. In addition, there are several major interstate transmission projects that could provide significant strategic benefits to California. However, due to their size and multi-state nature, these projects face additional permitting and other barriers that most likely would require longer than five years to resolve. For these reasons, the Energy Commission staff is proposing to expand the time horizon for transmission projects to ten years for specific projects and 20 years for the identification of transmission corridors in the *2007 Strategic Plan*.

One purpose of this workshop is to solicit comments from Transmission-Ownning Load Serving Entities (TLSEs) on staff's proposed approach, noted above, and receive feedback on specific projects and corridors that could meet these objectives. Another purpose is to develop information for the IEPR record concerning interstate transmission planning in the West, proposed major interstate transmission project proposals affecting California and the Western Interconnection, and the potential benefits and issues associated with these projects. More information is needed to understand the resources such projects propose to access, the loads they anticipate serving, and specific characteristics regarding planning alternatives, line capacity, estimated costs and potential benefits, as well as the current status of the projects. It is also important to know if there are potential synergies between these projects and/or to what extent they could be competitors.

The general context of interstate transmission planning in the West is changing rapidly, affecting resource options, project permitting, and financing needs, among others. For example, California climate change legislation (Senate Bill (SB) 1368, Stat. 2006, Ch. 598 and Assembly Bill 32, Stat. 2006, Ch. 488) will affect resource development and resource options. Federal and state transmission corridor planning (Energy Policy Act of 2005, Pub.L. 109-58, Sections 1221 and 368, and California's SB 1059, Stat. 2006, Ch. 638) could change future siting decisions and how "not in my backyard" (NIMBY) issues may be considered. Regional planning initiatives by the Western Electricity Coordinating Council (WECC) through its Transmission Expansion Planning Policy Committee (TEPPC) and Federal Energy Regulatory Commission (FERC) Order 890 could increase coordination among western entities and better integrate in-state and interstate planning.

Proposed Guidelines

Transmission Projects

Staff proposes the following guidelines for projects that should be included in the Strategic Plan:

1. Will be needed by 2017 to ensure reliability, relieve congestion (reduce the cost of serving loads) or to access renewable resources.
2. Will require permitting approval such as an Environmental Impact Report, an Environmental Impact Statement, and/or a Certificate of Public Convenience and Necessity.

Transmission Corridors

Staff believes corridor recommendations made in the *2007 Strategic Plan* should help facilitate the development of future transmission projects in California by focusing primarily on the following three major issues of concern:

1. Corridors on non-federal lands that would provide access to renewable resource areas in order to help the state achieve Renewables Portfolio Standard (RPS) and greenhouse gas (GHG) policy goals.
2. Corridors on non-federal lands in areas near load centers that may be threatened by continued development and population growth and may not be available in the future when transmission projects are proposed. This includes existing corridors or rights-of-way where upgrades may be needed in the future – these could include lower voltage transmission lines not currently operating at 200 kV or above.
3. Corridors on non-federal lands needed to interconnect with existing federal corridors or corridors identified on federal land under Section 368 of the Federal Energy Policy Act of 2005.

See the Appendix for a staff summary of project-related information submitted by TLSEs in response to the Energy Commission's adopted *Forms and Instructions for Submitting Electric Transmission-Related Data*.¹

¹ See: [<http://www.energy.ca.gov/2007publications/CEC-700-2007-002/CEC-700-2007-002-CMF.PDF>.]

APPENDIX: STAFF SUMMARY OF FORMS AND INSTRUCTIONS RESPONSES

In response to the *Forms and Instructions for Submitting Electric Transmission-Related Data*, the Energy Commission received submittals from the following transmission owners:

Pacific Gas and Electric (PG&E)
Southern California Edison (SCE)
San Diego Gas and Electric (SDG&E)
Sacramento Municipal Utility District (SMUD)
Los Angeles Department of Water and Power (LADWP)
Transmission Agency of Northern California (TANC)²
Modesto Irrigation District (MID)
Turlock Irrigation District (TID)
City of Anaheim (Anaheim)
Glendale Water and Power (GWP)
Redding Electric Utility (Redding)
Imperial Irrigation District (IID)
Western Area Power Administration (Western)

The submittals were divided between full responses that included descriptions of the transmission owner's existing system and planned projects, and submittals of brief system descriptions for transmission owners with no planned projects. Anaheim, GWP, Western and Redding filed short descriptions of their systems and data, indicating they had no new projects planned in California. These filings were adequate for these utilities. The filings of PG&E, SDG&E, SCE, LADWP, SMUD, TANC, MID, TID, and IID included system descriptions and descriptions of projects that could be considered for inclusion in the Energy Commission's 2007 *Strategic Plan*. A brief description of the filings and potential *Strategic Plan* projects is presented here, based on Energy Commission staff review.

Pacific Gas and Electric

The PG&E filing includes numerous projects that have been identified in the most recent transmission expansion plan, as well as links to information on the Frontier Line Project and the Sea Breeze or Pacific Northwest project. While there were approximately 14 projects that PG&E estimated would cost more than \$20 million, most of these were reconductoring projects or substation upgrades (new or upgraded transformers) which would be exempt from most permitting requirements and otherwise not require permitting approval. There were three major projects that included new facilities:

- San Francisco Bay Area (Bay Area) 500 kV substation.
- Gates – Gregg 230 kV double circuit transmission line.
- Midway – Gregg 500 kV transmission line.

² TANC consists of nine municipalities, two municipal irrigation districts and one Associate Member.

Based on the PG&E Electric Transmission Data Submittal these the three projects should be considered for inclusion in the Strategic Plan.

Bay Area 500 kV Substation

This project is fairly undefined at this point and is being studied by the Greater Bay Area Transmission group. Several of the projects described in the PG&E plan involve improving the 230 kV delivery system into the Bay Area by reconductoring these transmission lines. Reconductoring, while a cost effective and usually low-impact method to increase transmission capacity, has limits (and at some point, if loads in the area continue to grow, more transmission capacity would be required.) A new 500 kV substation and connections to the existing 500 kV system would significantly increase the system's ability to bring power into the Bay Area while potentially reducing the need for local capacity resources.

Gates – Gregg 230 KV Line

The Gates – Gregg 230 kV double-circuit tower line (DCTL) project is approximately 60 miles long, would cost between \$100 to \$200 million project that and is not needed until 2016 or later. The project would increase the load serving capability in the Fresno area and increase the number of hours that the pumps at the Helms Pumped Storage facility could be used. Increasing the pumping window for Helms would help the electric generation system use nondispatchable resources like wind and solar energy. This project is not needed if the Midway – Gregg 500 kV transmission line project is constructed.

Midway – Gregg 500 kV Line

The Midway – Gregg 500 kV project is approximately 150 miles long and would cost between \$800 million and \$1 billion. The project would increase the south-to-north transfer capacity of Path 15 by approximately 1,250 MW and would replace the Gates – Gregg 230 kV line.

The Midway – Gregg 500 kV line would increase the system's ability to move power from Southern and Central California north to load centers in Fresno and the Bay Area. The project would also improve the system's ability to move wind and other renewable generation from Southern California to Northern California and could be part of a connection between the Tehachapi region and PG&E's service territory. Like the Gates – Gregg project, the Midway – Gregg project would increase the number of hours that the Helms Pumped Storage plant could be used, thus increasing the system's ability to use nondispatchable resources. This project is not needed if the Gates – Gregg 500 kV transmission line project is constructed.

San Diego Gas and Electric

The SDG&E filing included a number of projects that are primarily reconductoring or substation improvements that should require little if any permitting. Only the proposed Sunrise Powerlink Project is a candidate for inclusion in the *2007 Strategic Plan*.

Sunrise Powerlink

The Sunrise Powerlink is a new 500 kV transmission line that is currently undergoing review at the California Public Utilities Commission. This project was one of five transmission projects recommended in the Energy Commission's *2005 Strategic Plan* because of its ability to reduce congestion, improve reliability and increase access to renewable resources.

Southern California Edison

SCE identified five projects in its data submittal that are candidates for the *2007 Strategic Plan*:

West of Devers Rebuild

This project would encompass the four 230 kV lines heading west from the Devers Substation and has a planned in-service date of June 2010. The estimated cost is approximately \$200 million. These upgrades were part of the recently permitted Devers – Palo Verde No. 2 500 kV project; however, because of permitting issues, the West of Devers upgrades were replaced with a second Devers – Valley 500 kV line. With the approval of the Devers-Valley 500 kV alternative, the West of Devers Rebuild may no longer be needed.

Devers-Mirage 230 kV Transmission Line

The Devers-Mirage 230 kV line is needed by June of 2011 to mitigate reliability criteria violations and would cost approximately \$50 million.

Vincent-Mira Loma 500 kV Transmission Line

The Vincent-Mira Loma 500 kV line is an 80 mile line planned for 2011 that would mitigate South of Lugo transmission congestion and would cost approximately \$500 million.

Lake Elsinore Advanced Pumped Storage Project

The Lake Elsinore Advanced Pumped Storage (LEAPS) project includes both a new pumped storage facility and a new 500 kV transmission line connecting the SCE and SDG&E service territories. The final Environmental Impact Statement has been approved. The Elsinore Valley Municipal Water District is also preparing a draft Environmental Impact Report (EIR) for the project, which could be issued in early summer, with a final EIR by fall. The project could be operational as early as mid-2010.

Tehachapi Regional Transmission Project

The Tehachapi Regional Transmission Project (TRTP) is a multi-phased project designed to deliver wind generation in the Tehachapi region to load centers in California. The in-service dates are from 2008 to 2013. The first segment of the project was recommended in the *2005 Strategic Plan*.

Transmission Agency of Northern California

The Transmission Agency of Northern California (TANC) identified six projects in its response. These projects include an upgrade to the California - Oregon Intertie (COI) which would add 300 MW to import capability into California from the Pacific Northwest. The other five projects are a series of 230 kV projects and one 500 kV project that improve the interconnection among TANC members in California.

COI Upgrade

The COI Upgrade project includes adding series capacitors at either the Captain Jack or Olinda Substations, upgrading the shunt capacitors at the Tracy Substation, and replacing series capacitors at PacifiCorp's Malin Substation. The project is expected to cost approximately \$34 million and would increase the transfer capability of the COI by at least 300 MW. No in-service date was provided.

Because the COI upgrade involves only substation improvements and would not require permitting approval, it is not a likely candidate for the *2007 Strategic Plan* as it. The other five projects, though not very well defined in terms of costs, benefits and alternatives, could be candidates.

Alpha

Project Alpha includes new 230 kV lines, three new substations, and reconductoring existing lines. It would cost approximately \$146 million. There are four elements to this project:

- A. An east-west tie between SMUD and MID/TID.
- B. A tie between Western and the Northern California Power Agencies (NCPA) resources.
- C. A direct connection between Western and Lodi.
- D. An increase in the transfer capability between Tracy and Sacramento.

The project includes approximately 56 miles of new 230 kV transmission lines and reconductoring approximately 80 miles of 230 kV lines. TANC did not quantify the benefits of this project and no in-service date was provided.

Beta

The Beta project includes a new 230 kV substation and approximately 40 miles of new 230 kV transmission, at a cost of approximately \$40 million. The Beta project would reinforce the transmission system north of Path 15 and would provide a connection between Western and some of the California Department of Water Resources facilities. No in-service date was provided.

Delta

The Delta project includes approximately 45 miles of new 230 kV lines, 12 miles of new 115 kV lines and is estimated to cost approximately \$217 million. The lines are a combination of single- and double-circuit lines and a mix of overhead and underground segments. The project would increase import capability into Santa Clara and Palo Alto

from the California-Oregon Transmission Project (COTP). No in-service date was provided.

Epsilon

The Epsilon project ties the Beta and Delta projects together with a 65 mile-long 230 kV line, a new 230 kV substation and is estimated to cost approximately \$114 million. Sixty-one miles of the new transmission line would be overhead and four miles would be underground. These new facilities would improve reliability in the Northern California transmission system. No in-service date was provided.

Zeta

The Zeta project would allow increased delivery of new renewable resources in Northern California without impacting or reducing the COI's import capability. The project would include 173 miles of new 500 kV transmission, two new substations and would cost an estimated \$559 million. The project would be built 500 kV towers and lines, but the new substations would not include 500 kV transformers. These facilities would be operated at 230 kV until a new regional project is added north of Round Mountain. Most of the new transmission lines (164 miles) would use existing corridors. The transmission facilities could be energized at 500 kV to accommodate a major new interconnection to the Pacific Northwest. No in-service date was provided.

Los Angeles Department of Water and Power

The LADWP transmission data submittal identified three major transmission projects: the Intermountain DC upgrade, Green Path North and a LADWP-to-Tehachapi project. Each of these projects would increase the import capability into LADWP load centers.

Intermountain DC Line Upgrade

The existing Intermountain DC line ties the Intermountain Power Plant in Utah to the Adelanto Substation in Southern California and is rated at 1,920 MW. The planned project would upgrade the converter stations at the substations, increasing the transfer capability by 480 MW, to 2,400 MW. The proposed upgrade would cost approximately \$100 million. LADWP plans to have this upgrade operating by December of 2008. Because the COI upgrade involves only substation improvements and would not require permitting approval, it is not a likely candidate for the *2007 Strategic Plan* as it.

Green Path North (LADWP/IID)

The Green Path North project would be a new connection between the IID and LADWP service areas. This project would consist of 500 kV lines, new substations, and upgrades of both LADWP and IID facilities. The project would transmit from 1,200 MW to 1,600 MW and cost approximately \$475 million. The project could be completed by November of 2011.

The Green Path North project would allow new generation in and around the Imperial Valley to be delivered to Southern California. This generation could include efficient new gas-fired technology, but the Imperial Valley is also expected to develop significant geothermal, wind and solar resources. Thus, the Green Path North could provide the rest of California with access to these new sources of renewable power.

The Green Path North facilities would include:

1. Two new 500 kV substations, the Devers no. 2 Substation and the Hesperia Substation.
2. An 85-mile, new 500 kV transmission line from the Devers no. 2 Substation to the Hesperia Substation.
3. One or two new 1-mile 500 kV lines connecting the new Devers no. 2 Substation to the existing Devers Substation.
4. A new 5-mile 287 kV tap line from the Hesperia substation to the existing Victorville – Century line. This would create a Century – Hesperia 287 kV line while the Hesperia – Victorville portion, approximately 17 miles, would be upgraded to 500 kV.
5. A new 500 kV or 230 kV 30 mile-long transmission line from a new IID Indian Hills Substation to the Devers no. 2 Substation.
6. A new 230 kV line from the new Indian Hills Substation to the existing Coachella Valley Substation.

LADWP Tehachapi Transmission Project

The LADWP Tehachapi Transmission Project would be designed to connect and deliver new resources, in particular wind resources, in the Tehachapi region. The project would include several new substations and could deliver as much as 1,600 MW to LADWP's Rinaldi and Castaic Substations by December 2009. This project could be staged to accommodate new generation resources as they develop and is estimated to cost approximately \$200 million.

The LADWP Tehachapi Transmission Project would include five new 230 kV substations:

- Barren Ridge
- Haskell
- Pine Tree Wind
- Wind #2 and
- Wind #3.

The Barren Ridge and Haskell Substations would sectionalize the existing Cottonwood - Rinaldi 230 kV line. The northern portion of the existing line (Cottonwood-Barren Ridge) would be rebuilt while the southern portion (Barren Ridge – Haskell – Rinaldi) would be reconductored.

Sacramento Municipal Utility District

SMUD provided its *Ten-Year Transmission Plan Assessment (2006-2015)*, which included one major transmission project and a series of alternatives for a second project. The primary project is the O'Banion-Elverta/Natomas Project. The second

project is a series of alternatives for connecting the Tracy, Elverta and Hurley Substations.

O'Banion-Elverta/Natomas 230 kV project

The O'Banion-Elverta/Natomas project would be a new 26 mile-long double-circuit 230 kV line from the O'Banion Substation, with one circuit terminating at the Elverta substation and the other at the Natomas Substation. SMUD estimates this project would cost approximately \$28 million and would improve the reliability of the SMUD system by increasing the load-serving capability, improving operations, and reducing the remedial action scheme requirements for the Sutter Energy Center. In effect, this would increase the availability of the power plant and eliminate the impacts of several contingencies for Sacramento load-serving entities.

Turlock Irrigation District

The TID provided information on a very near-term project, one phase of which would be completed in 2007 and the other in 2008. One project would convert the single-circuit 230 kV line from the Westley Substation to the Tracy Substation into a double-circuit line, while the other would build a new 115 kV line from the Westley to the Marshall Substation. These projects would allow more of the utility's loads to be served from the 115 kV system and increase the system's ability to serve loads. These transmission facilities plus modifications to several of TID's substations would cost approximately \$28 million.

Modesto Irrigation District

The MID response included the description of a new 16-mile, double-circuit 230 kV line between the Westley and Rosemore Substations which would help MID meet reliability requirements at all times. MID expects to have this project in service in 2008, and it may require board approval if it is necessary to condemn property to accommodate the transmission line.